Praktikum

Geometry Processing

Organization

Ludwig-Maximilians-Universität München

About

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Instructor

Prof. Dr. Andreas Butz
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Responsible Professor

Registration & Timetable (*tentative*)

- Register via **Uni2Work**. ***Important***:

  https://uni2work.ifi.lmu.de/course/W21/IfI/PGP

- **Time: Monday 14:00 - 18:00**
  - 14:00 - 16:00 Topics of the Day
  - 16:00 - 18:00 Discussion & Hacking
- **Zoom: https://lmu-munich.zoom.us/j/95163577341**
  - **Password: <announced-in-presence>**

Dates	Title
18.10.2021	Introduction
25.10.2021	Discrete Differential Geometry
08.11.2021	Smoothing
15.11.2021	Parameterization
22.11.2021	Remeshing
29.11.2021	Deformation
06.12.2021	Christmas Special: The Nanite System in Unreal Engine 5
10.01.2022	Data-driven Approach I: Statistical Learning, Representations, and Challenges with 3D Data
24.01.2022	Data-driven Approach II: Geometric Deep Learning and Differentiable Rendering Project Presentation (Idea-Pitch)
07.02.2022	Project Presentation (Intermediate)
24.01.2022	Project Presentation (Final)

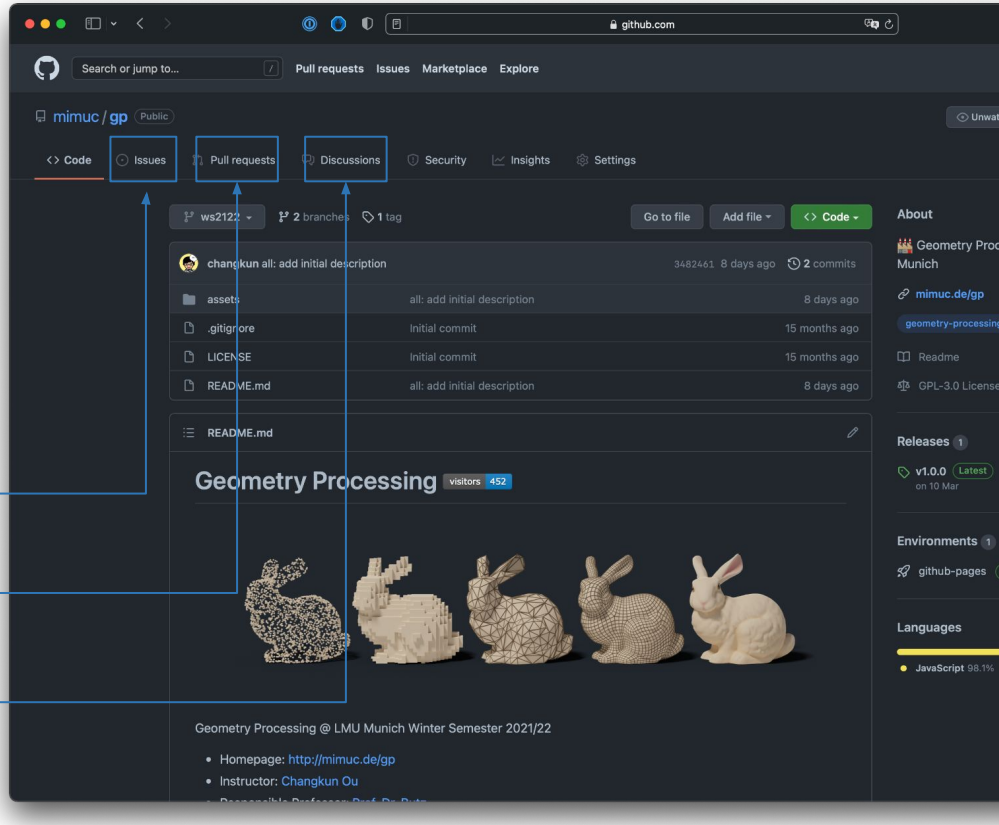
Communications

- We use **Github** for all communications
  - https://github.com/mimuc/gp/
  - Including skeletons, slides, submissions, …

Issues: report bugs regarding the repository

Pull request: submit code, contribute to the course, etc.

Discussions: discussion, ask questions, etc.



Grading (50%): Homework Projects

- Project difficulty depends on the actual topics
- (50%) You can decide to do **5 out of 7** given projects (5x10%), or
  - feel free to finish them all (no bonus, but learn more)
- Project will be released as homework after each session
- Coding skeleton will be provided, most likely 100~1000 lines of code
- Solutions will be discussed in a subsequent sessions (hence submission period is 1 week)

Grading (50%): Individual Project (subject to change)

- (10%) Proposal document, idea-pitch presentation (<5 minute)
- (10%) Intermediate presentation (≈5 minutes)
- (10%) Video submission (< 2 minutes)
- (10%) Final presentation (≈10 minutes)
- (10%) Code submission
- More details: https://github.com/mimuc/gp#individual-project

PC (Blender) Support

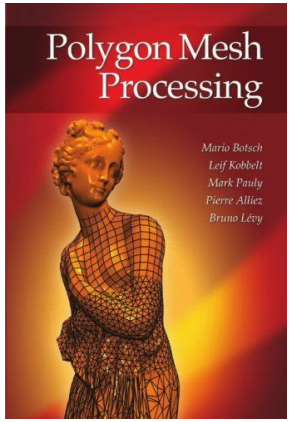
- We may need to use PCs with dedicated GPUs in some of the projects.
- If you need support for a PC, send an email titled by "[GP] PC room request" with your name and matriculation number to me (changkun.ou@ifi.lmu.de) using campus address (**@campus.lmu.de**) before 30.10.2021.
- You will receive the credentials when the room is ready for you, then
- You ***must*** make an appointment via email to **changkun.ou@medien.ifi.lmu.de** before your visit
- **Room address: Frauenlobstr. 7a Room 352**
- **Bookable slots: 10:00-13:00 & 13:00-16:00**

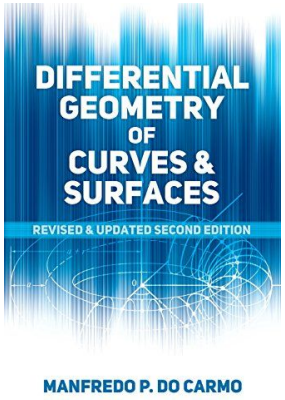
Late & Cheat Policy

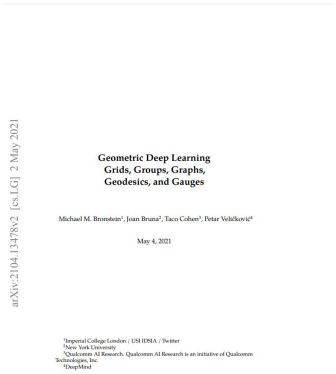
- Late submission: We don't accept late submission.
- Cheating: You don't.
  - Coding projects will surround the re-implementation of well-known GP algorithms, workflows, etc.
  - If one sent a pull request, then he/she's the solution will be visible publicly
  - We will discuss the solution anyway
  - If you found someone plagiarize your submission, ask the person to stop privately; if you can't find consensus together, please talk to me
  - If you just want a pass, we do not recommend participation in this course
  - **Take responsibility for your own study**

Books

- Botsch, Mario, et al. Polygon mesh processing. CRC press, 2010.
- Do Carmo, Manfredo P. Differential geometry of curves and surfaces: revised and updated second edition. Courier Dover Publications, 2016.
- Bronstein, Michael M., et al. Geometric deep learning: Grids, groups, graphs, geodesics, and gauges. arXiv preprint arXiv:2104.13478, 2021.







Questions?